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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/760,946

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Dai Huang

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7590 03/14/2007  
UCAR Carbon Company Inc.  
12900 Snow Road  
Parma, OH 44130

EXAMINER

NGUYEN, THUKHANH T

ART UNIT

PAPER NUMBER

1722

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/760,946	<b>Applicant(s)</b> HUANG ET AL.	
	<b>Examiner</b> Thu Khanh T. Nguyen	<b>Art Unit</b> 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 22 and 24-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22, 24-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 22, 24-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoo et al (6,309,591) in view of Harada et al (6,432,158).

Yoo et al disclose an apparatus for consolidating ceramic, metallic, or composite material, comprising a vessel or a compaction chamber (26), upper and lower plungers (58, 40) for applying a shear force of about 5-50MPa and an axial pressure of about 1-2,000 MPa (col. 7, lines 16-18), a power source (PS) for applying a current to the punches (Fig. 1) and the material (col. 10, lines 7-10) and resulting in high heating rate (col. 3, lines 25-32), an infrared detector and a thermocouple are provided for detecting the temperature of the compaction chamber (col. 8, lines 45-56), and a control system (CP) for detecting and regulating the movement of the cylinder (30) that drives the punches (col. 6, lines 18-22) in corresponding with the current passing through the material inside the mold cavity (col. 4, lines 30-49).

However, Yoo fails to disclose a displacement detector for detecting the position of the means for applying pressure.

Harada discloses an apparatus and method for compacting rare earth alloy powder, comprising upper punch (16) and lower punch (14), and position sensors (59, 66) constructed using a linear scale for detecting the position of the punches (col. 7, lines 61 – 66), wherein the

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position sensors transfer signals to a controller (90) for moving the punches to respective predetermined positions (col. 13, lines 42-62).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Yoo by providing position sensors as taught by Harada so that the height of the forming article relative to the position of the punches would also be controlled.

In regard to claims 24-25 and 31-32, wherein means for applying pressure comprises a first and second plungers (58, 40).

In regard to claims 26 and 33, wherein the powder source (PS) applies a current to the material through the plungers (Fig. 1, PS, 58, 40).

In regard to claims 27 and 42, Yoo discloses that the compaction chamber (26) is doubled-walled and a cooling fluid is introduced in the space between the walls to insulate the compaction chamber and the surrounding area (col. 8, lines 9-20).

In regard to claim 30, the apparatus further comprises a cavity, or a holding area (92) for receiving the material.

In regard to claims 34-35, Yoo discloses a control panel (190) connected to a control circuit and a computer for controlling the pulsing rate, pulsing time period, current, voltage, pressing time, so that the material is heated and pressed to a predetermine temperature (col. 9, lines 13-30) and pressure (col. 6, lines 18-22).

In regard to claims 36-37, and 39-41, the apparatus further comprises infrared detector or thermocouples (col. 8, lines 45-56) for detecting and controlling the temperature of the material, and a mechanism, or device connected to the cylinder for actuation, variation, and detecting the compaction pressure and for controlling by the operator through the control panel (col. 6, lines

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18-22), wherein the first temperature and the first pressure are the initial pressure and temperature before the compaction process begins and the second temperature and the second pressure are the high predetermined temperature and pressure, at which the material is sintered.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 22, 24-42 have been considered but are moot in view of the new ground(s) of rejection.

4. In regard to Yoo reference, the Applicant alleged that Yoo discloses an apparatus capable of shaping composite material, but "could not be used to form or shape a mixture of carbon fibers and matrix material into a carbon/carbon composite material." In response to applicant's argument that this reference fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., carbon fibers and matrix material and carbon/carbon composite material) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993), *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571-72, 7 USPQ2d 1057, 1064-1065 (Fed. Cir.), cert. denied, 488 U.S. 892 (1988).

The Applicants also argued that Yoo teaches away from the inventions as high shear would be detrimental for the formation of a carbon/carbon composites material, and that Yoo taught composites near a theoretical density, not composites having a range of densities as in current invention. This argument is not persuasive. Beside the fact that carbon/carbon composite material is not in the claims, the carbon/carbon composite material is the intended use

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of the apparatus and Yoo discloses that the apparatus is capable of shaping composite material (see abstract) with preferably near theoretical density. Further, Yoo discloses all necessary control structures for forming article at any desired density. Furthermore, claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). (Emphasis in original)

### *Conclusion*

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Khanh T. Nguyen whose telephone number is 571-272-1136. The examiner can normally be reached on Monday- Friday, 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gupta Yogendra can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TN  
3/11/07

  
**TIM HEITBRINK**  
**PRIMARY EXAMINER**  
**GROUP 130**  
3/13/07